

A puzzling discovery of a capsule of
Martynia louisiana

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The first figure accompanying this note is of a "fruit" of *Martynia louisiana* Mill., the "unicorn plant," "elephant's trunk" or "proboscis flower." This plant is a native of the United States, its distribution extending from Iowa, Illinois and Kansas southward. It is also found as an escape from gardens in Texas, New Mexico and other parts of the country.

The interest of the fruit here described lies in the fact that it was found recently at the village of Wolvercote, near Oxford, England, during the digging of a drain, at a point about 2 miles from the River Thames and about 70 feet above its level, near the garden hedge of a comparatively new house.¹

It has not been possible to elicit any definite information with regard to the *depth* at which the fruit was buried, but the soil adhering to it when it came into the writer's possession, consisted of Thames alluvium, a material which covers a considerable area, the Thames Valley being very wide at this point: most probably the fruit had lain buried only just beneath the surface.

It is in good condition, its sharply-pointed hooked spines not being worn to any extent; so that it is unlikely that it had been buried for very long. On the other hand, attempts to germinate seeds which were extracted from the capsule were unsuccessful; evidently the period of viability of the seed had been outrun.

No records could be discovered of *Martynia louisiana* ever having been grown in the neighbourhood of Wolvercote. The Curator of the Royal Botanic Gardens on the Surrey bank of the Thames at Kew, on the outskirts of London, informs the writer that the plant was formerly grown there, but owing to the difficulty of obtaining seeds, its cultivation has been discontinued. Had the specimen under consideration been found

¹ The writer of this note is indebted to Major G. D. Amery, of the School of Rural Economy, Oxford, for the specimen here described; to Mr. G. R. Clarke, also of the School of Rural Economy, for the analysis of the soil adhering to the specimen; and to Dr. J. Burt Davy, of the Imperial Institute of Forestry, Oxford, for much useful help and information.

actually at, or even near, the river-margin, and at a point *below* Kew, it is possible that it might have been thrown out from the Gardens, and have been river-borne, ultimately being deposited by some high-tide, or back-wash from a river-steamer. Wolvercote, however, is more than 100 miles *up* the river from Kew, and out of the reach of tidal influences; and in any case, the



Fig. 1. A mature capsule of *M. louisiana* lying upon the ground in its natural position. Note the upwardly and backwardly curving horns, and the hooked spines, especially those forming a prominent line directed towards the opening of the capsule. Nat. size. (Adapted from a drawing of a South African specimen by Mrs. Burt Davy.)

fruit was found too far from the river to allow of the idea of water-transport, except at some very distant date in the past; as mentioned above, however, its condition indicates that it is not a very old specimen.

The peculiar structure of this fruit, and the complete lack of local information suggesting a possible explanation of its occurrence at Wolvercote, led the writer to make inquiries into the natural and artificial distribution of *Martynia louisiana* and its allies; the following points may be of interest to American readers.

M. louisiana is a member of a small family of flowering plants—the Martyniaceae—consisting of coarse, low-growing, annual and perennial herbs, which occur naturally in tropical and sub-tropical America, in dry, or coastal regions.¹ The special interest of the family lies in the structure of the fruit, which is

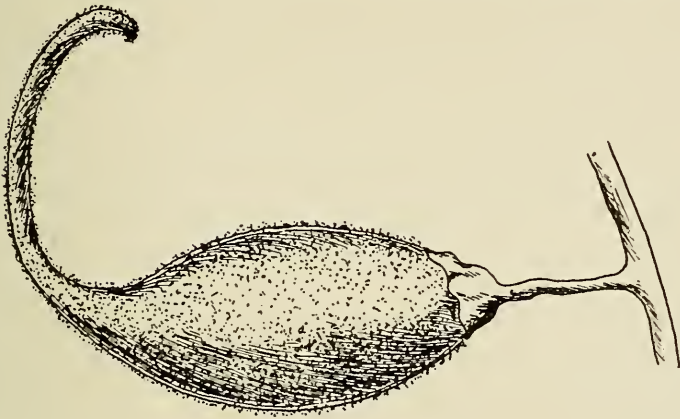


Fig. 2. A young fruit of *M. louisiana* to show the glandular, hairy external covering, and the long, curved beak. (After Fig. 2328 in Bailey's "Standard Cyclopedia," p. 2005.)

admirably adapted to dispersal of the seed by animal agencies. This is characteristically shown in *M. louisiana*, the species here figured. The fruit, in its immature condition (Fig. 2), is pod-like, and is terminated by a curved beak equalling or exceeding the pod itself in length; it is this beak which has given rise to the common American names of the plant—"unicorn plant," "elephant's trunk" and "proboscis flower." The pod at first has a fleshy covering, with glandular hairs, as the fruit ripens, however, this fleshy exterior rots away, leaving a woody

¹ Bailey, L. H. "The Standard Cyclopedia of Horticulture." New York, 1925. Vol. II, p. 2005.

“capsule” covered with hooked spines; the woody tissues extending into the beak split on the drying and hardening of the capsule, forming two long horns. As the fruit lies upon the ground in its natural position, these horns curve upwards and backwards over the pod-like body of the capsule (Fig. 1); they have become somewhat distorted in the “Wolvercote specimen” and one of them is evidently broken, being shorter than the other. (The length of the body of the capsule in this case is 3 inches, and of the longer horn, 5 inches; it appears to be an average-sized specimen.) On the upper surface of the capsule, there is a prominent line of hooked spines, directed towards the horns; these spines are well-shown in the drawing. The seeds escape by the median longitudinal splitting of the capsule, beginning at the top end, as indicated in the Wolvercote specimen and in Fig. 1.

Various members of the Martyniaceae are cultivated as ornamental plants on account of their large showy flowers; those of *M. lutea* Lindl., a Brazilian species, are yellowish-green externally and orange-yellow within the corolla-tube; *M. fragrans* Lindl., a native of Texas, New Mexico, Arizona and N. Mexico, has reddish-purple or violet-purple flowers; while *M. louisiana* Mill. has dull white or yellowish corollas flecked internally with yellow or purple. Some species of *Martynia* are also grown in the vegetable garden, their young fruits, before hardening has taken place, being used as a pickle, in the same way as young cucumbers; *M. fragrans*, for example, was introduced into England for this purpose in 1731,¹ though it is rarely, if ever, met with now, the cool, damp English climate—very different from that of its native habitat—being unsuitable for its cultivation.

M. louisiana, as mentioned above, is a native of certain western and southern States; Bailey notes that it has become naturalized farther to the east and north. It is a plant, however which has travelled far beyond the States, for it may now be found in a naturalized condition in South Africa. The writer is indebted to Dr Burt Davy for an explanation of its occurrence so far from its native area.

¹ Sanders, T. W. “The Encyclopædia of Gardening.” London, Collingridge (n. d.). Pp. 262, 263.

During Great Britain's South African War (1899–1901), a large number of mules was brought over from Texas and South America to Africa for transport purposes for the troops, and for repatriation work; subsequently, in the neighbourhood of the artillery and repatriation camps, plants of *M. louisiana* were occasionally found, having grown, apparently, from seed which had fallen from capsules included in the hay brought with the mules; or, it may be, from capsules still entangled, by means of their tenacious hooked spines and curved horns, in the tails of the animals.

Knight and Step, in a semi-popular work on "The Living Plant,"¹ quote Frank Buckland as saying that the fruits of *Martynia louisiana* must have been created "for the express purpose of sticking to the tails of the wild horses which roam the plains of South America." Dr. Burt Davy's observations in South Africa, however, suggest that the structure of the fruit provides a seed-distribution mechanism much more perfect and less fortuitous than that brought about by the mere transport of the capsules in the tails of animals, in which they might, or might not, hang in a position suitable for the scattering of the seeds.

It will be noted in Fig. 1, how the mature fruit lies upon the ground, with its two curved horns directed upwards and backwards. The horns are springy and resilient, and should an animal tread upon the fruit as it lies in its natural position, its fetlock is immediately gripped by the horns. As the animal lifts its foot, the horns cause the body of the capsule to spring backwards, so that the prominent ridge of hooked spines or bristles comes into sharp contact with the fetlock, to which the capsule thus becomes firmly attached, in such a position that its opening is directed downwards. The retrorse bristles, of course, prevent the capsules from falling off; in fact, they tend to cause it to work *up* the animal's leg. As the animal walks away, carrying the fruit thus attached, the seeds are gradually scattered.

Observations of this seed-dispersal mechanism have endowed the plant with still another common name, peculiar to South Africa, namely, "mule-grab."

¹ Knight, A. E., and Step, E. "The Living Plant in Leaf, Flower and Fruit." London, Hutchinson, 1905. P. 363.

Dr. Burt Davy's account of the introduction of mule-grab into South Africa has suggested to the writer a possible explanation of how a seed-capsule of the plant came to be discovered at Wolvercote, so remote from either its original or its adopted habitat. After the South African War, it was common to see in English cottages carefully-treasured specimens of African plants, brought home by the soldiers; the silvery leaves of *Leucadendron*, in particular, were great favourites as "souvenirs." It is quite possible that some native of Wolvercote, finding the mule-grab capsule near a repatriation camp, was attracted by its curious, somewhat hedgehog-like appearance, and carried it home on his return from the war. In course of time, its interest and its associations having been forgotten, it may have been thrown out, after the manner of cottage refuse, into some garden or waste land, to await its re-discovery during the opening-up and extension of the village as a residential suburb of Oxford. The writer has not been able to confirm this idea; no one can be discovered who remembers having seen the "mule-grab" before, so that how it found its way to Wolvercote must remain a mystery. The suggested explanation is, however, possible, and it is at any rate interesting to speculate concerning the adventures of this odd "fruit."

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